Captain: _____
Material Specialist: _____
Technology Specialist: _____
Recorder: _____
Period:_____

In this activity, you will create linear lines with different slopes.
Procedure
Launch Logger Pro and connect the Motion Sensor to the computer.

1. Create a line that has a slope of zero. Select Experiment from the top menu and choose Store Latest Run to ensure that your line is saved. Then follow the directions below to check to make sure your slope is zero.
   a. Click the Examine button,  , to display a cursor to read values from your graph. These values are your time (x) and position (y).
   b. Using the Examine button, find two points on the graph. We will call them (x_1, y_1) and (x_2, y_2).
   (x_1, y_1)= (x_2, y_2)=
   c. Then use the formula for slope to compute the slope. m= $\frac{y_2-y_1}{x_2-x_1}$ =
   d. Is it what you expected? Why or why not?

2. Create a line that has a positive slope. Select Experiment from the top menu and choose Store Latest Run to ensure that your line is saved. Then follow the directions below to check to make sure the slope is positive.
   a. Click the Examine button,  , to display a cursor to read values from your graph. These values are your time (x) and position (y).
   b. Using the Examine button, find two points on the graph. We will call them (x_1, y_1) and (x_2, y_2).
   (x_1, y_1)= (x_2, y_2)=
   c. Then use the formula for slope to compute the slope. m= $\frac{y_2-y_1}{x_2-x_1}$ =
   d. Is it what you expected? Why or why not?

3. Create a line that has a negative slope. Select Experiment from the top menu and choose Store Latest Run to ensure that your line is saved. Then follow the directions below to check to make sure the slope is negative.
   a. Click the Examine button,  , to display a cursor to read values from your graph. These values are your time (x) and position (y).
   b. Using the Examine button, find two points on the graph. We will call them (x_1, y_1) and (x_2, y_2).
   (x_1, y_1)= (x_2, y_2)=
   c. Then use the formula for slope to compute the slope. m= $\frac{y_2-y_1}{x_2-x_1}$ =
   d. Is it what you expected? Why or why not?

4. Go back to each line and fine the y-intercept. Remember the y-intercept is where the line crosses the y-axis. You will have to estimate because the line really never crosses the y-axis.
   Record your y-intercepts:
   Line with Zero Slope: y-intercept=

   Line with Positive Slope: y-intercept=

   Line with Negative Slope: y-intercept=

5. Write the equation for each line using slope-intercept form (y = mx + b). Remember slope is m and the y-intercept is b.
   Line with Zero Slope: y=

   Line with Positive Slope: y=

   Line with Negative Slope: y=